AMENDMENTS TO THE CLAIMS

Please cancel claim 67 without prejudice, amend claims 2, 3, 41-44, and 68, and insert new claims 69-83, as follow. A complete listing of the claims is provided below.

1. (Canceled)

2. (Currently Amended) The hearing aid of claim ~~67~~ 69, wherein said signal processor comprises a plurality of cascaded all-pass filters.

3. (Currently Amended) The hearing aid of claim ~~67~~ 69, wherein said signal processor operates on a warped frequency scale that approximates a Bark scale.

4-29. (Cancelled)

30. (Original) A hearing aid, comprising:

an input signal channel providing digital input signals;

an input data buffer, said input data buffer holding a block of data of size M comprised of a portion of said digital input signals;

a plurality of cascaded all-pass filters comprised of 2M cascaded all-pass filters, wherein a first block of said digital input signals pass from said input data buffer through said plurality of cascaded all-pass filters to form a first sequence of delayed samples and wherein a second block of said digital input signals pass from said input data buffer through said plurality of cascaded all-pass filters to form a second sequence of delayed samples, and wherein said first sequence of

delayed samples and said second sequence of delayed samples form a combined sequence of delayed samples;

means for windowing a first portion of said combined sequence of delayed samples, wherein said first portion is of size M, wherein a windowed sequence of delayed samples results from said windowing means;

means for applying a 2M-point frequency domain transform on said windowed sequence of delayed samples, wherein a warped sequence results from said frequency domain transform applying means;

means for calculating a plurality of frequency domain level estimates of said warped sequence;

means for calculating a plurality of frequency domain gain coefficients from said plurality of frequency domain level estimates;

means for applying an inverse frequency domain transform on said plurality of frequency domain gain coefficients, wherein a set of compression filter coefficients of a compression gain filter result from said inverse frequency domain transform applying means; and

means for convolving a second portion of said combined sequence of delayed samples with said compression filter coefficients, wherein said second portion is of size M, wherein a digital output signal results from said convolving means.

31. (Previously Presented) The hearing aid of claim 30, further comprising a hearing aid, wherein the dynamic range compressor is incorporated within said hearing aid.

32. (Previously Presented) The hearing aid of claim 30, wherein said plurality of frequency domain gain coefficients comprise a warped time-domain filter.

33. (Previously Presented) The hearing aid of claim 30, further comprising a digital-to-analog converter, said digital-to-analog converter converting said digital output signals to analog output signals.

34. (Previously Presented) The hearing aid of claim 33, further comprising an output transducer, said output transducer converting said analog output signals to an audio output.

35. (Previously Presented) The hearing aid of claim 30, said plurality of cascaded all-pass filters comprising a plurality of first order all-pass filters.

36. (Previously Presented) The hearing aid of claim 30, further comprising a digital processor, wherein said digital processor is adapted to provide said windowing means, said means for applying said 2M-point frequency domain transform, said means for calculating said plurality of frequency domain level estimates, said frequency domain gain coefficients calculating means, said inverse frequency domain transform applying means, and said convolving means.

37. (Previously Presented) The hearing aid of claim 30, wherein said means for applying said frequency domain transform uses a transform selected from the group consisting of discrete Fourier transforms, fast Fourier transforms, Goertzel transforms, and discrete cosine transforms.

38. (Previously Presented) The hearing aid of claim 30, further comprising:

an input transducer, said input transducer converting audio input signals to analog input signals; and

an analog-to-digital converter, said analog-to-digital converter converting said analog input signals to said digital input signals.

39. (Previously Presented) The hearing aid of claim 30, further comprising:

a digital-to-analog converter, said digital-to-analog converter converting said digital output signals to analog output signals; and

an output transducer, said output transducer converting said analog output signals to an audio output.

40. (Original) A method of processing sound in a hearing aid, comprising the steps of:

receiving digital input signals;

passing a portion of said digital input signals through a plurality of cascaded all-pass filters to form a sequence of delayed samples;

windowing said sequence of delayed samples;

applying a frequency domain transform to said windowed sequence of delayed samples to form a warped sequence;

calculating a plurality of frequency domain level estimates from said warped sequence;

calculating a plurality of frequency domain gain coefficients from said plurality of frequency domain level estimates to form a warped time domain filter;

applying an inverse frequency domain transform on said plurality of frequency domain gain coefficients to form a set of compression filter coefficients; and

convolving said sequence of delayed samples with said compression filter coefficients to form a digital output signal.

41. (Currently Amended) The hearing aid of claim ~~67~~ 69, wherein the hearing aid is configured to be mounted on the ear of a user.

42. (Currently Amended) The hearing aid of claim ~~67~~ 69, wherein the hearing aid is an in-the-canal hearing aid.

43. (Currently Amended) The hearing aid of claim ~~67~~ 69, wherein the hearing aid is an in-the-ear hearing aid.

44. (Currently Amended) The hearing aid of claim ~~67~~ 69, wherein the hearing aid is a behind-the-ear hearing aid.

45-59. (Canceled)

60. (Previously Presented) The hearing aid of claim 30, wherein the hearing aid is an in-the-canal hearing aid.

61. (Previously Presented) The hearing aid of claim 30, wherein the hearing aid is an in-the-ear hearing aid.

62. (Previously Presented) The hearing aid of claim 30, wherein the hearing aid is a behind-the-ear hearing aid.

63-67. (Canceled)

68. (Currently Amended) The hearing aid according to claim ~~67~~ 69, wherein said signal processor is configured to perform at least a part of a signal processing in a frequency domain.

69. (New) A hearing aid, comprising:

a microphone for providing an input signal;

a signal processor that is adapted to process said input signal in order to provide an output signal; and

a transducer adapted to convert said output signal into an audio signal;

wherein said signal processor is adapted to generate a first frequency warped signal from said input signal, said signal processor further being adapted to process said first frequency warped signal according to a hearing impairment correction signal processing algorithm to obtain a second frequency warped signal.

70. (New) The hearing aid of claim 69, wherein said signal processor comprises a plurality of all-pass filters.

71. (New) The hearing aid of claim 69, wherein said second frequency warped signal is corrected for hearing impairment.

72. (New) The hearing aid of claim 69, wherein the processor comprises a finite impulse response filter, and coefficients of the finite impulse response filter have even symmetry.

73. (New) A hearing aid, comprising:

a microphone for providing an input signal;

a signal processor that is adapted to process said input signal in order to provide an output signal; and

a transducer adapted to convert said output signal into an audio signal;

wherein said signal processor is configured to generate one or more frequency warped signals, and comprises a plurality of all-pass filters arranged in series.

74. (New) The hearing aid of claim 73, wherein said signal processor is configured to generate a frequency warped signal from said input signal, and process said frequency warped signal according to a hearing impairment correction algorithm.

75. (New) The hearing aid of claim 73, wherein the signal processor is configured to perform at least a part of a signal processing in a frequency domain.

76. (New) The hearing aid of claim 73, wherein the plurality of all-pass filters comprises a first all-pass filter, and a second all-pass filter that receives information from the first all-pass filter.

77. (New) The hearing aid of claim 73, wherein the processor comprises a finite impulse response filter, and coefficients of the finite impulse response filter have even symmetry.

78. (New) A hearing aid, comprising:

a microphone for providing an input signal;

a signal processor that is adapted to process said input signal in order to provide an output signal; and

a transducer adapted to convert said output signal into an audio signal;

wherein said signal processor is configured to perform a frequency analysis of the input signal, compute one or more frequency-dependent gains according to a hearing impairment correction algorithm, and use said one or more frequency-dependent gains to produce a frequency-warped output signal.

79. (New) The hearing aid of claim 78, wherein said signal processor comprises a plurality of all-pass filters.

80. (New) The hearing aid of claim 79, wherein said plurality of all-pass filters are arranged in series.

81. (New) The hearing aid of claim 78, wherein said signal processor is configured to perform at least a part of a signal processing in a frequency domain.

82. (New) The hearing aid of claim 78, wherein the processor comprises a finite impulse response filter, and coefficients of the finite impulse response filter have even symmetry.

83. (New) The hearing aid of claim 78, wherein said processor is configured to perform said frequency analysis on a warped scale.